**AMENDMENTS TO THE CLAIMS:**

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Currently Amended) A method for determining the imaging equation for self calibration with regard to performing stereo-PIV methods on visualized flows, said method being comprised of:

providing at least two cameras and one image sector, with the cameras viewing approximately [[the]] a same area of [[the]] an illuminated section but from different directions [[,]] ;

taking first and second images simultaneously using respectively first and second camera of the two cameras, the first and second images respectively having corresponding interrogation areas;

determining [[the]] point correspondences between the two cameras ~~being determined~~ by measuring [[the]] a displacement of [[the]] respective interrogation areas in the ~~camera~~ first and second images using optical cross-correlation [[,]] ; and

determining the imaging equation ~~being determined~~ by means of an approximation ~~methods~~ method, using known internal and external camera parameters and the point correspondences and the displacement of respective

interrogation areas and the point correspondences and the displacement of respective interrogation areas.

2. (Currently Amended) The method according to claim 1, wherein the internal camera parameters include [[the]] focal length, [[the]] position of [[the]] optical axes ($x_0$, $y_0$) and distortion parameters of [[the]] camera optics.

3. (Currently Amended) The method according to claim 1, wherein the external parameters include [[the]] position and orientation of the cameras relative to each other.

4. (Currently Amended) The method according to claim 1, wherein if [[the]] position of the illuminated section relative to [[the]] a coordinate system of a known imaging equation is unknown, the position of the illuminated section is determined using the point correspondences.

5. (Currently Amended) The method according to claim 1, wherein if one or several of the internal camera parameters are known, [[the]] other ones of the internal and external camera parameters are ~~determinable~~ determined using the point correspondences in order to thus determine the imaging equation.

6. (Currently Amended) The method according to claim ~~1, wherein~~ further comprising:

taking two or more camera images ~~are taken~~ respectively by the at least two cameras at sequential times $t_0$ to $t_n$,

determining a [[the]] two-dimensional correlation function $c_0$ (dx, dy) to $c_n$ (dx, dy) ~~being determined~~ by means of optical cross-correlation at each time $t_0$ to $t_n$ using ~~these~~ corresponding ones of the images,

adding up the correlation functions $c_0$ to $c_n$ ~~being added up~~,

determining correlation peaks and a highest correlation peak, and

determining the displacement dx, dy of the respective one of the interrogation areas and, as a result thereof, the point correspondences being determined after based on the determination of the highest correlation peak.

7. (Previously Presented) The method according to claim 1, wherein the approximation method is based on the Levenberg-Marquardt algorithm.

8. (Previously Presented) The method according to claim 7, wherein the RANSAC algorithm is superimposed on the Levenberg-Marquardt algorithm.

9. (Currently Amended) The method according to claim 1, wherein each of the two cameras ~~camera~~ takes in short succession two images and that additional point correspondences are determined using a cross-correlation between the images at the times t and t+dt.

10. (Currently Amended) The method according to claim 1, wherein [[the]] optical axes of the at least two cameras are disposed coplanar to each other.

11. (Currently Amended) The method according to claim 6, wherein [[the]] a section thickness of ~~the two~~ illuminated sections corresponding to respective timings of the images is determined through [[the]] a width of the correlation peaks and a geometrical factor and that, together with the position of the illuminated sections in [[the]] space, said thickness serves to determine [[the]] an overlap between the [[two]] illuminated sections and whether they are suited for PIV measurement.

12. (Currently Amended) The method according to claim 5, wherein with assumption of ~~focussing~~ focusing on the particles in the illuminated section during the approximation method, [[the]] an image width is calculated as a function of [[the]] focal length of ~~the objective~~ objectives of the two cameras and of [[the]] a

spacing between the illuminated section and the ~~camera~~ two cameras and needs ~~no longer~~ not be fitted as a result thereof.

13. (Currently Amended) The method according to claim 5, wherein if a ~~Scheimflug~~ Scheimpflug adapter is used and with assumption that said ~~Scheimflug~~ Scheimpflug adapter is optimally adjusted, [[the]] an angle between a camera chip and a main axis and [[the]] a position of [[the]] a principal point on the camera chip are computed from the external image parameters and need ~~no longer~~ not be fitted as a result thereof.

14. (Currently Amended) The method according to claim 6, wherein [[the]] section thickness of the [[two]] illuminated sections is determined through ~~the width~~ widths of the correlation peaks and [[the]] image geometry and that, together with the ~~position~~ positions of the illuminated sections in [[the]] space, said section thickness serves to determine [[the]] an overlap between the [[two]] illuminated sections and whether they are suited for PIV measurement.